

## ABSTRACT

A system and method is disclosed for increasing the efficiency of a cellular communication network, reduce ongoing operating costs and increase revenue.

According to one aspect, a method is disclosed for increasing the efficiency of a cellular

5 communication network whereby network capacity in the radio access network (RAN) and baseband processing for wireless connections are dynamically adjusted to

automatically provision sufficient bandwidth and baseband processing capacity in

response to changes in the network. The method is further extended by implementing

policy management which allows wireless carriers to develop and implement network

10 based policies to automatically increase or decrease the amount of processing resources and network bandwidth required from any cell site, hub or mobile switching office.

According to another aspect, network efficiency is enhanced by utilizing a novel cellular network infrastructure. RF signals from cell site antennas of various technology types are demodulated, digital bit information is extracted from the RF signals, processed, and

15 groomed into Gigabit Ethernet/Resilient Packet Ring (GigE/RPR) or Ethernet over copper traffic flows using specific Quality of Service (QoS) priorities. The GigE/RPR traffic flows are routed to hub sites or mobile switching offices, at which point the packetized information is extracted and converted to RF signals that are equivalent to the signals that were received at the antenna. The RF signals are sent over coaxial cable to a  
20 network hub including a pool of Base Transceiver Stations (BTSs) (or Node Bs). The hub is coupled to one or more mobile switching offices via a second fiber optic ring.